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July 23, 1997

Mr. William F. Caton
Secretary
Federal Communications Commission
1919 M Street N.W.
Washington, D.C. 20554

RE: Ex Parte presentation in WT Docket 96-86

Dear Mr. Caton:

On July 23, 1997, Barbara Baffer, Richard Shiben, Ralph Haller, Dr. Charles Jackson and myself, all representing Ericsson Inc., met with David Wye and Dr. Thomas Stanley of the Wireless Telecommunications Bureau, John Clark of the Public Safety and Private Wireless Division and members of his staff, and John Cimko of the Policy Division and members of his staff.

The topics of discussion were Standards setting in Wireless Private Radio Telecommunications and the report of Dr. Michael Katz, former Chief Ecomonist of the FCC, titled "Public Interest Standard Setting for Public Safety Wireless."

Enclosed, pursuant to the ex parte rules, are two copies of the presentation, and two copies of Dr. Katz' report.

If there are any questions, please do not hesitate to contact me at (804) 592-7037.

Sincerely,

Robert J. Speidel, Esq.
Mgr., Regulatory Programs

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Certificate Number FM 11374EUS/L

Ericsson Inc.
Private Radio Systems
Mountain View Road
Lynchburg, Virginia 24502

Telephone: (804) 528-7000

STANDARDS SETTING IN PRIVATE RADIO WIRELESS TELECOMMUNICATIONS

Robert J. Speidel
Manager, Regulatory Programs
July 23, 1997

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WHAT IS A STANDARD?

- A set of operational and/or technical characteristics describing a radio system
- Standard may include:
  - system and service descriptions
  - interoperability, compatibility, and compliance requirements
  - methods of measurement
  - performance expectations for various elements
- Approved by an accepted standards authority

BENEFITS OF STANDARDS

- **May create a larger and more competitive market**
- **May promote price competition**
- **May reduce premature technological obsolescence**
- **May facilitate interoperability**

DRAWBACKS OF STANDARDS

- **May result in loss of choice**
- **May impede technological innovation**
- **May be anticompetitive**
  - **Create barriers to market entry**
  - **Enhances winners market position**
  - **Forces losers to scrap technology and product**

HISTORY OF STANDARDIZATION

- **19th Century**
  - **Railroads and Telecommunications - Interoperability**
- **20th Century**
  - **Development of membership based consensus organizations**

Membership-Based Standards Authorities - Characteristics

- **Balance the Power of Dominant Market Forces controlling standardization overtly or covertly**
  - **NO Standardization by default**
- **Two hallmarks**
  - **Integrate work with other standards authorities**
  - **Set rules are necessary to assure fair, unbiased operation and consensus among the members**

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

- **1918 - Recognition that US Global competitiveness hinged on the integrity of US voluntary consensus process**
  - **5 Leading Engineering Societies formed the American Engineering Standards Committee, now known as ANSI**
- **Purpose**
  - **Not a standards developer**
  - **Manage & Coordinate private sector voluntary standards activities to ensure efforts serve the national interest**
- **US member of ISO and IEC**

ANSI PRINCIPLES

- **ANSI-accredited Standards Authorities must comply**
  - **OPENNESS - ALL materially affected and interested parties must have the ability to participate**
  - **LACK OF DOMINANCE - The decision making body must not be dominated by any single interest category, e.g. producers, users, general interest.**
  - **CONSIDERATION OF VIEWS AND OBJECTIONS - ALL comments and objections must be seriously reviewed and serious attempts at resolution must occur**
  - **APPEALS MECHANISM - Affected interests must have opportunity for review of the matter by an impartial body**

GOVERNMENTAL PROCESS

The FCC goes through a due process proceeding when it adopts the equivalent of a standard.

NON-ACCREDITED AUTHORITIES

- **Not required to follow due process rules**
- **More injurious than a proprietary standard developed solely by an unquestionably biased producer because of the synergistic effect of the false appearance of all interested parties' consensus**

Section 273(d)(4) Telecomm Act of 1996

- Congressional action to address the standards developed by non ANSI-accredited authorities
- Application of ANSI principles to authorities not subject to ANSI accreditation.

Public Safety Standards Setting Today

- **Options**
  - **Governmental authority**
  - **ANSI-accredited - TIA**
  - **Non ANSI-accredited organization - APCO**

PUBLIC SAFETY STANDARDS - FCC ROLE

- **Congressional Mandate to provide for Public Safety needs**
- **Areas of Action**
  - **Spectrum**
  - **Spectrum Efficiency**
  - **Interoperability**
  - **Competition**

SPECTRUM

- **24 MHz - NPRM Channels 60-69**

SPECTRUM EFFICIENCY

- **State of the Art (e.g., 6.25 kHz equivalent)**

COMPETITION

- **Least Restrictive Standards**

INTEROPERABILITY

- **Adopt the PSWAC ISC recommendation of 25 kHz FM for INTEROPERABILITY**
  - **With 2.5 MHz for interoperability, 25 kHz FM is more than sufficient**
  - **25 kHz FM is totally devoid of anticompetitive influences**
  - **Users are not required to compromise everyday needs**

DIGITAL INTEROPERABILITY STANDARD

- **Options**
  - **FCC - Advisory Committee/NPRM**
  - **ANSI-accredited authority**
  - **non ANSI accredited organization following ANSI or section 273 principles**
- **Current Activities**

YOU CAN DO SOMETHING!

- **Reasonably ancillary to.....**
  - **control over channels of transmission**
  - **encouraging new technologies**
  - **encouraging effective use of radio**
  - **promoting safety**
  - **improve spectrum efficiency**
  - **encourage competition**

Public Interest Standard Setting for Public Safety Wireless

by

Michael L. Katz*

The Tilden Group, LLC
5335 College Avenue, Suite 28
Oakland, California 94618

2 April 1997

* This report was prepared at the request of Ericsson, Inc.

EXECUTIVE SUMMARY

The fundamental public interest objective in setting policy toward public safety radio is to protect life and property to the fullest extent possible at the lowest possible cost to society. To achieve this objective, the technology used by public safety agencies should satisfy four criteria:

- Economic resources, including spectrum, should be used efficiently.
- Sufficient interoperability should be achieved to allow effective and reliable interagency communications.
- Public safety users should have the ability to utilize new and advanced services as they become available.
- There should be vigorous competition in the supply of public safety wireless infrastructure and mobile and portable equipment.

There are two important ways in which the federal government can influence the choice of technology used by public safety radio users to promote the attainment of these criteria: (1) by the exercise of buyer power, and (2) through formal standard setting. A formal standard may take the form of either a *performance standard*—which defines certain criteria that a radio system must be able to satisfy or the functions it must offer, without specifying a particular technology—or a *technical compatibility standard*—which specifies a particular technological interface that allows different components of various radio systems to work together.

A central question is why federal government intervention is needed at all. In other words, why can't users and providers find the optimal outcome on their own? There are three parts to the answer, all of which turn on the fact that the interests of particular users or

manufacturers may not reflect the overall public interest. One reason for this divergence is the lack of a market mechanism for spectrum allocation. While spectrum may be "free" from the perspective of a public safety wireless user, it is costly to society as a whole. Thus, public safety users may lack the incentives to adopt efficient technologies, and there are significant potential public-interest benefits from setting a spectrum efficiency performance standard.

Network effects are a second part of the answer. Adoption decisions by one user affect the economic welfare of other parties who desire to communicate with that user. The potential benefits of interoperability might appear to suggest that a technical compatibility standard is desirable. It is important to recognize two central points, however. One, various providers and users may strongly disagree over the choice of a standard because some standards will tend to favor one technology (and thus the providers and past users of that technology) over others. Thus, it is vital that any standard-setting process be open and representative of the full range of affected parties. Two, there are other, less-restrictive ways that interoperability can be achieved, such as gateways and shared systems. These alternative means would potentially allow for greater innovation and competition, both of which can be expected to generate significant public interest benefits.

Consideration of competitive effects raises the third divergence between the public interest and the private incentives of various parties. A provider who successfully implements a strategic standard that weakens its rivals will be able to gain at the expense of consumers and economic efficiency. Hence, it is essential to ensure that any standard does not confer inefficient competitive advantages on one provider or subset of providers.

APCO Project 25 has developed a potential technical compatibility standard for public safety radio. It is my understanding that there are alternative technologies that have the ability to make more intensive use of a given amount of spectrum, and thus under the APCO Project 25 specification valuable public safety spectrum might not be used efficiently. Given the high value of spectrum, this fact suggests that adoption of the APCO Project 25 specification—through either a formal rulemaking or government procurement practices—would be against the public interest.

Of course, one must check whether the Project 25 specification offers offsetting benefits along other dimensions. Rather than supporting adoption of this specification, however, these additional considerations provide even greater reason to conclude that adoption of the APCO Project 25 specification would be antithetical to the public interest:

- Interoperability would be limited because the APCO Project 25 specification does not overcome the obstacles posed by having public safety radio allocations in several different bands.
- The ability of public safety users to make use of advanced high-bandwidth services and applications may be restricted by the use of frequency division multiple access (FDMA).
- The APCO Project 25 specification would potentially diminish competition in the supply of public safety wireless infrastructure and handsets because the specification: (a) depends on proprietary technology for which licensing terms apparently are at present unsettled; and (b) increases the risk and expense of entry by limiting the points of systems unbundling.

Rather than adopt a standard that suffers from the sorts of shortcomings identified above, sound public policy should:

- ***Set a spectrum efficiency performance standard.*** Such a standard is needed to ensure that public safety wireless users do not waste spectrum as a result of the lack of a price mechanism for allocating this scarce resource.
- ***Block the adoption of standards that harm competition.*** There is a public interest in protecting competition in the provision of public safety radio infrastructure and handsets.
- ***Set in motion an open and democratic process to develop a means of achieving interoperability.*** The result could be either an open, non-proprietary standard or the use of system sharing and interconnection gateways. Whatever the outcome, it should both be spectrally efficient and promote competition.

This policy approach will allow firms to compete in terms of price, product quality, service quality, and innovation to see who can best meet public safety agencies' needs. The result of this competition will be improved public safety at a lower cost.